

REMARKS

Claims 1-18 have been cancelled. Claims 19-29 are pending and generally track the prior claims. Claims 19-28 are directed to compositions containing chitosan. Claims 29-39 are directed to composition containing a chitosan derivative. Independent Claims 19 and 29 find support in original Claim 1. Chitosan and chitosan derivatives are specifically disclosed in the specification on page 8, second full paragraph, and on pages 10-12. Support for the dependent claims is found in the disclosure as follows: Claim 20 (page 9, lines 22-23), Claims 21-22 and Claims 32-33 (page 12, lines 21-22), Claims 23 and 34 (Claim 5, page 12, lines 20-21), Claims 24 and 35 (Claim 6, page 14, lines 11-12), and Claims 25-28 and Claims 36-39 (Claims 7-11, pages 8-9). Specific support for the dry coat ranges in Claims 26 and 37 is found on page 9, lines 6-12. Claim 30 finds support on page 10, first two full paragraphs. Accordingly, the Applicants do not believe that any new matter has been added.

Rejection—35 U.S.C. §112, first paragraph

Claims 1-5 and 7-12 were rejected under 35 U.S.C. 112, first paragraph, as lacking enablement for a composition which does not contain a carboxyl-containing molecule. The Applicants traverse this rejection to the extent that it would be applied to the new claims, because these claims are product and method of use claims, not method of making claims.

To enable a product claim (or a method of use claim reciting a product) the disclosure should teach how to make and use the claimed product, see MPEP 2164.01. “As long as the specification discloses at least one method for making and using the claimed invention that bears a reasonable correlation to the entire scope of the claim, then the enablement requirement of 35 U.S.C. 112 is satisfied”, In re Fisher, 166 USPQ 18, 24 (CCPA 1970, cited at MPEP 2164.01(b).

How to make. The present disclosure not only discloses how to make the claimed chitosan-metal and chitosan-derivative-metal compositions and actually exemplifies at least eleven different compositions--see water-based primers 1-11 on pages 25-29 of the specification (which are also summarized in Table 1 on page 35).

The Official Action was concerned that pages 8, 13 and 14 of the specification appear to require the use of an acid, such as a carboxylic acid, to make chitosan soluble so that a chitosan-metal complex can form. The Applicants respectfully submit that one with skill in the art would be enabled to make the claimed compositions without undue experimentation based on the disclosure and its extensive examples. One with skill in the art would understand the chemical and charge characteristics of chitosan, a product that is made by deacetylation of chitin (page 9, lines 17 *ff.*). Page 21, lines 22-*et seq.* provides specific guidance regarding making chitosan soluble “chitosan for use in the present invention is inherently insoluble in water and contains amino groups and hydroxyl groups in its skeleton. When an acid is added to convert chitosan into a salt, the amino groups show cationic property so that chitosan is rendered soluble in water”. Furthermore, page 25, lines 15 *ff.* disclose a method for producing a chitosan-metal complex. While acid treatment may be desirable for producing the water-based compositions of the invention, the acid *per se* is not necessarily a component of the complex, since once treated the chitosan itself is water-soluble.

Moreover, the pH of the claimed complexes may be varied by one with skill in the art without undue experimentation (pH adjustment is routine) based on the particular use for which the composition is used, see also page 15, lines 4-14 which discloses adjusting the pH of the chitosan-metal compositions. The Examples in the present disclosure also disclose compositions with differing pH's, see e.g., water-based primer 6 (page 27, line 10) which is adjusted to a pH of 8.0 and water-based primer 7 (page 27, line 19) which is adjusted to a pH

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of 3.0. Accordingly, one with skill in the art would have been enabled to make and use the claimed compositions without undue experimentation.

How to use. The disclosure also discloses how to use the claimed compositions, see page 1 and page 8, line 21 ff. Moreover, it also provides extensive exemplification of methods of using the claimed compositions; see Tables 2 and 3 on pages 36-37 of the specification.

Accordingly, the disclosure shows how to make and use the claimed invention without undue experimentation and therefore, this rejection would not apply to the present claims.

#### Objection—Claims

Claims 5 and 11 were objected to. These objections are now moot.

#### Rejection—35 U.S.C. §102

Claims 1 and 3 were rejected under 35 U.S.C. 102(b) as being anticipated by Kobayashi et al., Bokin Bobai 23(12): 741 (Abstract). This document refers to aqueous solutions containing “chitosan-zinc salts (CZS)” or “chitosan-copper salts (CCS)”. This rejection would not apply to the chitosan-metal complexes of Claim 19 (e.g., no Cu or Zn) and would not apply to the chitosan-derivative-metal complexes of Claim 29 (no chitosan).

#### Rejection—35 U.S.C. §102

Claims 1 and 3 were rejected under 35 U.S.C. 102(b) as being anticipated by Wang et al., Guangpuxue Yu Guangu Fenxi 19(6): 817 (Abstract). This document refers to dilute formic acid aqueous solution containing “chitosan-Zn(II) complexes”. This rejection would not apply to the present claims for the reasons above.

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CONCLUSION

In view of the above amendments and remarks, the Applicants submit that this application is now in condition for allowance. An early notification to that effect is earnestly solicited.

Respectfully submitted,

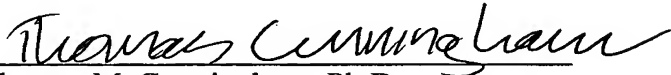
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